

MONTHLY REPORT

1 September - 30 September 1956

SYSTEMS ENGINEERING BRANCH
ENGINEERING DIVISION

This report constitutes the first prepared under the new organization of the Systems Engineering Branch. The reorganization has progressed smoothly and it appears that engineering personnel will be able to concentrate more on assigned projects since they are now further divorced from maintenance activities.

In an effort to shorten monthly reports by reducing the number of inactive projects reported on, those projects designated for Area support will not be reported during the month that no significant activity has occurred.

1. PROJECTS AND ACTIVITIES

E-5002 MEDIUM POWER TRANSMITTER

During this report period, the GPT-750 transmitter was taken to the [REDACTED] for repair, modifications and testing. The repair consisted of replacing faulty or burned out components and the modifications consisted of suggestions by this Agency and the [REDACTED] group to effect a more dependable and safe transmitter. After completing the repair, modifications and testing for six days at the factory, the transmitter was returned to [REDACTED] where it is now undergoing a second series of evaluation tests.

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E-5004 MODIFICATION OF TELEFUNKEN D. F. EQUIPMENT

One each Telefunken D. F. equipment, type PST-102/1 was broken down into several components to which stock numbers were assigned. These components are to be used as maintenance support items for this type D. F. equipment.

E-5009 PORTABLE RECORDING STUDIO

Work progresses satisfactorily on the Portable Recording Studio. The Control Panels have been fabricated and the switches, jacks, etc., have been mounted. The equipment racks have been assembled, drilled, tapped and painted.

Delivery of the Trunks from a subcontractor has not as yet been made.

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E-5014 VHF MUX STUDY

A survey of military link equipment was completed during this report period. A list of the various types of equipment and information concerning each type is now being prepared.

E-5015 VFO STUDY

No information concerning transmitters type 16-F and RT-4 for VFO operation was received from [REDACTED] during this reporting period.

E-5020 MODIFICATION WORK ORDERS

Modification Work Order #16 was published and distributed during the month. This MWO improved the keying characteristics of the CP-4 by a slight circuit change and replacement of the relays with smaller and quieter units.

E-5021 D. F. DEVELOPMENT AND REPLACEMENT PROGRAM

This project was discussed with [REDACTED] of the Support Branch of the Operations and Training Division, OC, who has agreed to call and chairman a meeting of members of interested Divisions and Staffs within Communications to formalize requirements, costs and specifications.

E-5030 GENERAL ANTENNA STUDY

No change in status.

E-5031 ENGINE-GENERATOR STANDARDIZATION PROGRAM

A list of engine-generator sets has been compiled to be used as a guide in preparing a final list of generator sets that will be considered standard. This list covers the power range from 200 KW to 125 watts, and consists of some 14 sets.

Arrangements are being made to hold a conference with interested parties to survey the list submitted and make recommendation as appropriate.

E-5032 ENGINE-GENERATOR SPARE PARTS PROGRAM

This project was reactivated on 27 September 1956. A complete check is being made on the list of items now in stock for each of the engine-generators we must support.

E-5033 PORTABLE PACK PHONE STUDY TO ESTABLISH COMMO STANDARD

No further progress can be reported on this project. Priorities and a heavy workload necessitate expending man-hours on other projects.

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E-5037 TECHNICAL BULLETINS

There were no technical bulletins issued during this reporting period.

E-5038 MOBILE ALTERNATE RELAY AND COMMAND POST

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A preliminary drawing and cost estimate was prepared and forwarded to the Operations and Training Division, OC concerning a portable Alternate Command Post which would replace the [REDACTED] installation in the event this equipment were disabled or destroyed. During the period covered by this report, a memorandum was received from the Operations and Training Division, OC requesting that this project be cancelled. Accordingly this project will no longer be reported.

E-5040 TELEVISION INTERFERENCE STUDY (TVI)

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We have been informed by the station engineer at [REDACTED] that the complainant bought a new television set about six months ago. The complainant was to install a new down lead from the antenna to the receiver, and also a low pass filter in the input to the receiver. The complainant was then going to call the station engineer in two weeks to notify him of the results. Six months have passed without hearing from the complainant. The station engineer also informed us that all recommendations made to eliminate the interference were carried out. The project is now considered complete and will not be reported on further.

E-5041 RT-4 TRANSMITTER REPACKAGING

25X1A5a1

At the beginning of this month a visit was made to [REDACTED] to check on their progress with this project. Various ways to eliminate the troubles inherent in this transmitter were discussed then as well as later in the month by telephone. On 24 September, [REDACTED] sent us an estimated cost breakdown which completed their initial phase of the project. Further reports pertaining to this transmitter are expected from [REDACTED] and when received, the two will be compared and evaluated.

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E-5042 SPECIFICATIONS FOR VHF MOBILE EQUIPMENT FOR WAREHOUSE STOCK

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[REDACTED] has supplied a Parts Data List that was to be furnished under the terms of the contract. This list is being checked for accuracy and compliance with specifications.

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Inspection of the equipment is scheduled for the first week in October. [REDACTED] has been designated Inspector.

E-5043 RADIO INTERFERENCE STUDY

The technical literature received from the Department of Navy, Radio Interference Reduction Center, is now being edited to obtain information pertaining to our particular problems in radio interference. This information will be made into a technical bulletin and sent to all areas in order to facilitate the location and reduction of radio interference using standard procedures and standard equipment.

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E-5044 CO-AXIAL TRANSMISSION LINE PATCH PANEL

A drawing of possible equipment configuration and a description of what this system should be able to do was sent to [REDACTED] to obtain a cost and time estimate. It was learned that the [REDACTED] Corporation has developed a 5 KW, air cooled 70 ohm dummy load and shortly will come out with a reflectometer to measure VSWR. The design specifications of this patch panel require these or similar units. An intensive search has been made of Quick-Connector plugs and fittings for use in the final system. 25X1A5a1 25X1A5a1

E-5045 TRANSMITTER TO ANTENNA MATCHING EQUIPMENT AND INFORMATION

An investigation of the various types of Standing Wave Ratio meters, bridges, and reflectometers was completed.

Numerous copies of a Navy study concerning this problem were produced and will be distributed with the final report of this problem.

Ten Agency designed "Trolley Meters" for use on open transmission lines were received and will be sent to all areas after evaluation tests are completed.

E-5060 STRATEGIC RESERVE PROGRAM (STOCKPILE)

The 13 position station bill of materials still is held in abeyance until firm requirements are stated.

A revision of the 15 position station bill of materials was inaugurated during this reporting period.

A revision of the 20 position station bill of materials is nearing completion. In a memorandum dated 13 September 1956, the Chief, Policy and Planning Staff requested that the shipment of the [REDACTED] be cancelled. All items comprising the [REDACTED] are to be returned to communications stock, allocation 22. 25X1A6a 25X1A

E-5080 MOBILE MESSAGE CENTER

→ A proposed preliminary layout of a Mobile Message Center which would be a companion unit to the 2-ST has been prepared as requested by the Operations and Training Division, OC. *With OGT assistance*

Basic planning and discussions indicate the Message Center will consist of the following:

- One Supervisory Position
- Two Manual Positions
- One RTTY Circuit or Duplex Land Line Operation
- One OTP/ASAM-7 Position or Service Bench
- One Tiny Tot Position.

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E-5090 TINY TOT PROGRAM

Tentative drawings have been made for wiring the Dual Channel Transmitter-Distributor (XD-91) for basic on-line operation. Two receiver chassis have been wired, which will operate in conjunction with modified XD-91 units. At this time the XD-91 Transmitter-Distributors are not available and experimenting with the circuitry cannot be done.

Tentative drawings for text, cipher and break controls have been made. This control chassis will not be constructed until the operation of the basic unit has been checked and proven reliable for on-line use.

E-5231 DESIGN OF AUDIO AND TELETYPE PATCH PANELS FOR [REDACTED]

25X1A6a

During this reporting period, a trip was made to the microwave site [REDACTED] to gather information on the type of equipment and facilities available to provide a basis for the design of voice and teletype patch panels. 25X1A6a

E-5251 DISASTER REGISTRATION POINT COMMUNICATIONS FACILITY

The maintenance of the equipment installed in support of this project is now being carried out by the Installations and Maintenance Branch. This project will not be reported on further by the Systems Engineering Branch unless additional requirements are received.

E-5310 [REDACTED] BASE STATION

25X1A

25X1A

Engineering support was provided at the [REDACTED] Base Station, in conjunction with the Real Estate and Construction Division, relative to the final phases of the testing and operation of the air conditioning system.

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E-5314 [REDACTED] LINK

25X1A5a1

A study was conducted by [REDACTED] to determine whether a VHF communications link between [REDACTED] employing the AN/TRC-1 and AN/TRA-1 equipment is feasible. 25X1A6a

The results of their findings indicate this equipment would only give a fifty per cent reliability factor. AN/TRC-24 equipment was also investigated. This is similar to AN/TRC-1 except it operates in the UHF range; it would not prove as reliable as the AN/TRC-1 sets. This path was over 170 miles and it was not expected that AN/TRC equipment would give a high degree of reliability. Although the requirement for this circuit no longer exists we intend to have this study extended to determine what range can be expected with this type equipment at ninety to ninety-eight per cent reliability.

25X1A

E-5340 [REDACTED] BASE STATION

25X1A

Information was gathered and instructions forwarded regarding "Microwave Tower Reguying" data was also furnished relative to the use of the TRC 3500 matching transformer on high power pulse transmissions. Four servo controlled VFO units were shipped [REDACTED] and action was initiated to ship two modification kits for servo-tuning of the 231-D transmitter.

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E-5362 VENTILATION OF THE TRANSMITTER BUILDING [REDACTED]

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The plan for ventilating the transmitter building submitted by [REDACTED] is currently being reviewed by the Real Estate and Construction Division, OL; and when concurrence is obtained, the necessary fans, louvers, etc. will be shipped for installation by the [REDACTED] under supervision by [REDACTED] personnel.

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E-5382 [REDACTED] BASE RADIO STATION

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A dispatch was sent to [REDACTED] suggesting the use of an electronic T/R switch [REDACTED] to eliminate the receiver blocking during periods of transmission. [REDACTED] was also queried relative to frequent breakdowns of the SP-600 receiver noted in the [REDACTED] monthly report.

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E-5411 [REDACTED]

25X1A6a

Assistance is being provided the Communicator [REDACTED] to obtain a suitable antenna installation. One 35' Premax whip has been requisitioned and will be modified for co-axial input and cut to frequency prior to shipment to this station.

25X1A6a

A fifteen meter beam is being repackaged for pouch shipment [REDACTED] for operation on 21, 25 and 26 megacycles.

E-5412 DESIGN OF ONE MAN RADIO STATION [REDACTED]

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The Bill of Materials and drawings for this project are being finalized. It is intended that these drawings and Bill of Materials may be used as a guide for all stations in the [REDACTED] area.

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25X1A

E-5441 [REDACTED] BASE RADIO STATION

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To assist [REDACTED] in solving the microwave equipment difficulties noted in their Periodic Maintenance Summary, information was forwarded suggesting some definite causes of troubles and possible solutions. [REDACTED] was requested to re-evaluate the microwave situation to determine if new RF equipment was required.

E-5445 AIR CONDITIONING SYSTEM - [REDACTED]

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The Real Estate and Construction Division, OL is currently preparing a list of materials required to complete the air conditioning installation at this site. When this list is received by the Engineering Division, procurement action will be initiated.

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25X1A6b

E-5446 POWER STUDY - [REDACTED]

No change in status. During the August report period a dispatch was forwarded to Chief, WEMCA advising him that action had been taken to procure three 100KW, 60 cycle General Motors Diesel Generator sets as replacements for the present 50 cycle diesel generators installed at the [REDACTED] transmitter site. In addition, this dispatch requested that we be provided with information regarding the capacity of existing power cables and switch gear in order that we may design an appropriate switch cabinet and procure additional cable and other intergral parts. As of this date, no reply has been received.

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DRAFTING

The Drafting Unit has completed approximately forty-five pencil drawings of sizes varying from $8\frac{1}{2}$ " x 11" to 24" x 36".

Approximately forty positive-negative, and forty-five positive reproductions have been completed on the "trans-copier" reproducing unit during this report period.

The work load in this unit was considerably heavier than the previous period, but was not up to our load capabilities.

MISCELLANEOUS

UTILIZATION OF MAPS AND GLOBES

An investigation of the various types, sizes, and uses of maps and globes for determining distances and bearings in the orientation of antennas was completed.

This report is now being edited before publication.

AMPEX 10 $\frac{1}{2}$ RECORDER REEL ADAPTOR

Schematic and assembly drawings for an adaptor were made. These drawings have been sent to the [REDACTED] Lab to have a prototype made. Expected delivery of the prototype reel adaptor is the week of 1 October.

25X1A6a

REMOTE KEYBOARD FOR AFSAM-7

Existing problems of the AFSAM-7 have been discussed with [REDACTED] of Security and Dr. Gorton of TSS. The major problem of noise in the audio range requires that the AFSAM-7 be completely isolated in a soundproof container. With this type of isolation a remote keyboard is required.

25X1A9a

25X1A

The National Security Agency, [REDACTED], will have a keyboard adaptor available about 1 January 1957. This adaptor should facilitate remoting the keyboard. A meeting with NSA will be held as soon as possible to discuss the problem and obtain further information about the keyboard adaptor.

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2. ADMINISTRATIVE

TDY

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[REDACTED] - 17 September-22 September
[REDACTED] - 14 September
[REDACTED] - 24 July-5 September
[REDACTED] - 24 July-5 September
Design Section - 24 September

PCS

(Not Applicable)

EOD

(Not Applicable)

RESIGNATIONS

(Not Applicable)

TRANSFERS

(Not Applicable)

OTHER

TRAINING

25X1A9a

[REDACTED] Intelligence Course - 3 September-28 September
[REDACTED] Effective Writing Course
[REDACTED] Military Leave - 10 September-21 September

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Chief, Systems Engineering Branch

ATTACHMENTS:

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Memorandum for File, Subject: [REDACTED] Micro-Wave Exhibit Type VA-2 (25 Channel), dated 17 September 1956

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Memorandum to the File, Subject: Visit to [REDACTED] dated 1 October 1956

Memorandum for the Record, Subject: Report of TDY Trip to----- (July 24 - September 4, 1956), dated 17 September 1956

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Memorandum for the Record, Subject:
Report of TDY Trip to [REDACTED]
[REDACTED] (17 September - 22 September),
dated 28 September 1956

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